

ECM-23F II

SERVICE MANUAL

E Model



SPECIFICATIONS

General

Type	Electret condenser microphone (with back-electret condenser capsule)
Microphone output connector	Cannon XLR-3-12C type
Battery	R6 (size AA) battery
Dimensions	27 × 190 mm (outside diameter × length) (1.06 × 7.48 inches)
Weight	215 g (7.6 oz) incl. battery

Performance

Frequency response	20—20,000 Hz
Directivity	Uni-directional
Output impedance	200 ohms ± 20% balanced (Phone plug: Unbalanced)
Output level	Open circuit voltage ^{*1} : -68 ± 3 dB Effective output level ^{*2} : -47 ± 3 dBm Recommended load impedance is more than 3 k ohms.
Power requirement	Normal operating voltage: 1.5 V Minimum operating voltage: Approx. 1 V Approx. 150 hours with Sony battery SUM-3 (NS)
Battery life	Signal-to-noise ratio More than 50 dB (1,000 Hz, 1 μbar)
Noise level	Inherent noise Less than 24 dB SPL (0 dB SPL = 2×10^{-4} μbar) Wind noise ^{*3} (with wind screen) Less than 45 dB SPL Induction noise from external magnetic field ^{*4} Less than 5 dB SPL

Maximum sound pressure input level (at 1,000 Hz, 1% distortion)

	More than 134 dB SPL
Dynamic range	More than 110 dB
Temperature	20°C to 160°C (4°F to 140°F) for storage 0°C to 60°C (32°F to 140°F) for operation

^{*1} 0 dB = 1 V/μbar, 1,000 Hz

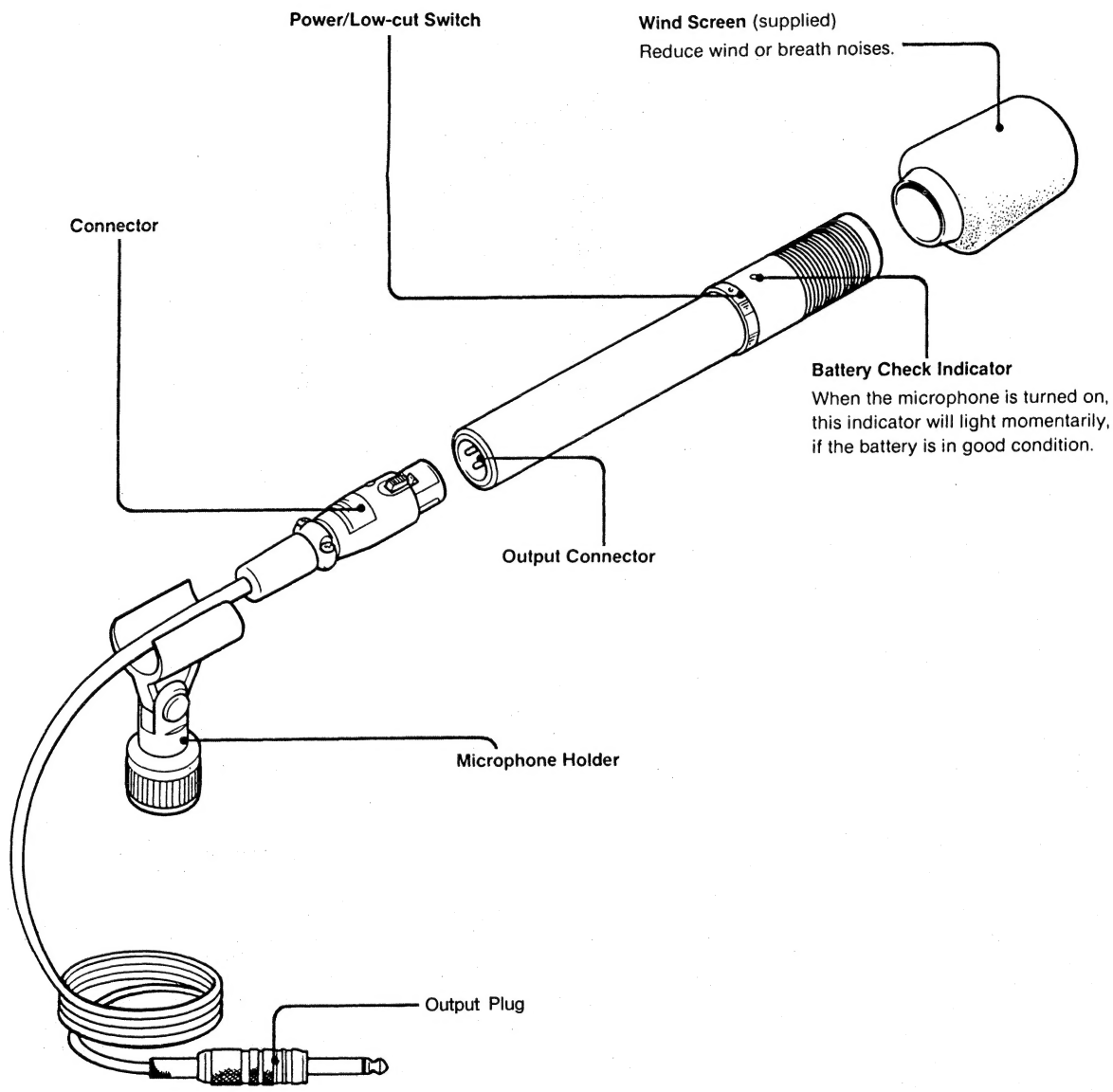
^{*2} 0 dBm = 1 mW/10 μbar, 1,000 Hz

^{*3} Wind noise is the value measured by applying a wind velocity of 2 m/sec (6.6 ft/sec) from all directions to the microphone. The mean value is taken and converted to the equivalent input sound level.

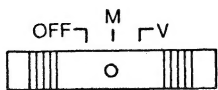
^{*4} The external magnetic field induction noise is measured with the microphone placed in an alternating magnetic field of 50 Hz, 1 milligauss. The maximum noise value is taken and then converted to the equivalent input sound level.

ELECTRET CONDENSER MICROPHONE
SONY®

Connection and Parts Identification



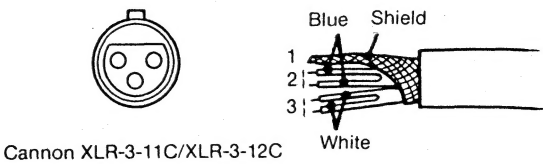
Turning the microphone on or off



OFF	To turn off the power.
M	This position is recommended for normal use.
V	To pick up a human voice more clearly.

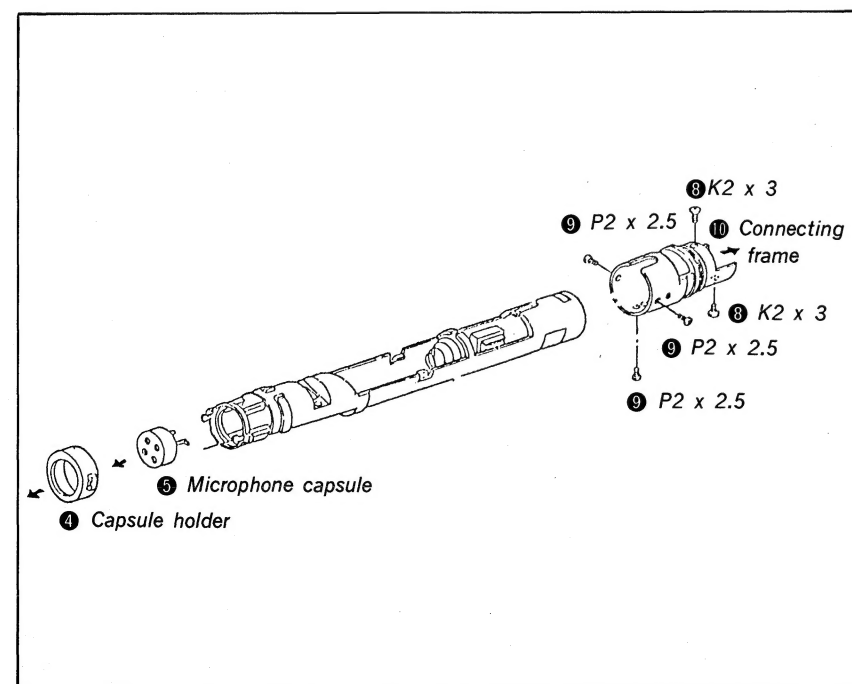
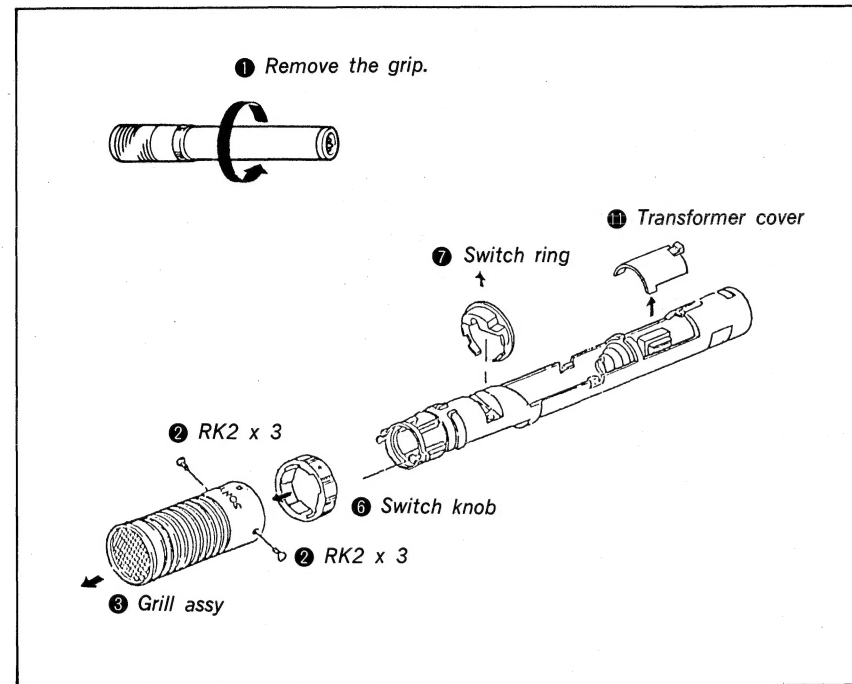
Connector Replacement

To replace the connector, proceed as follows.

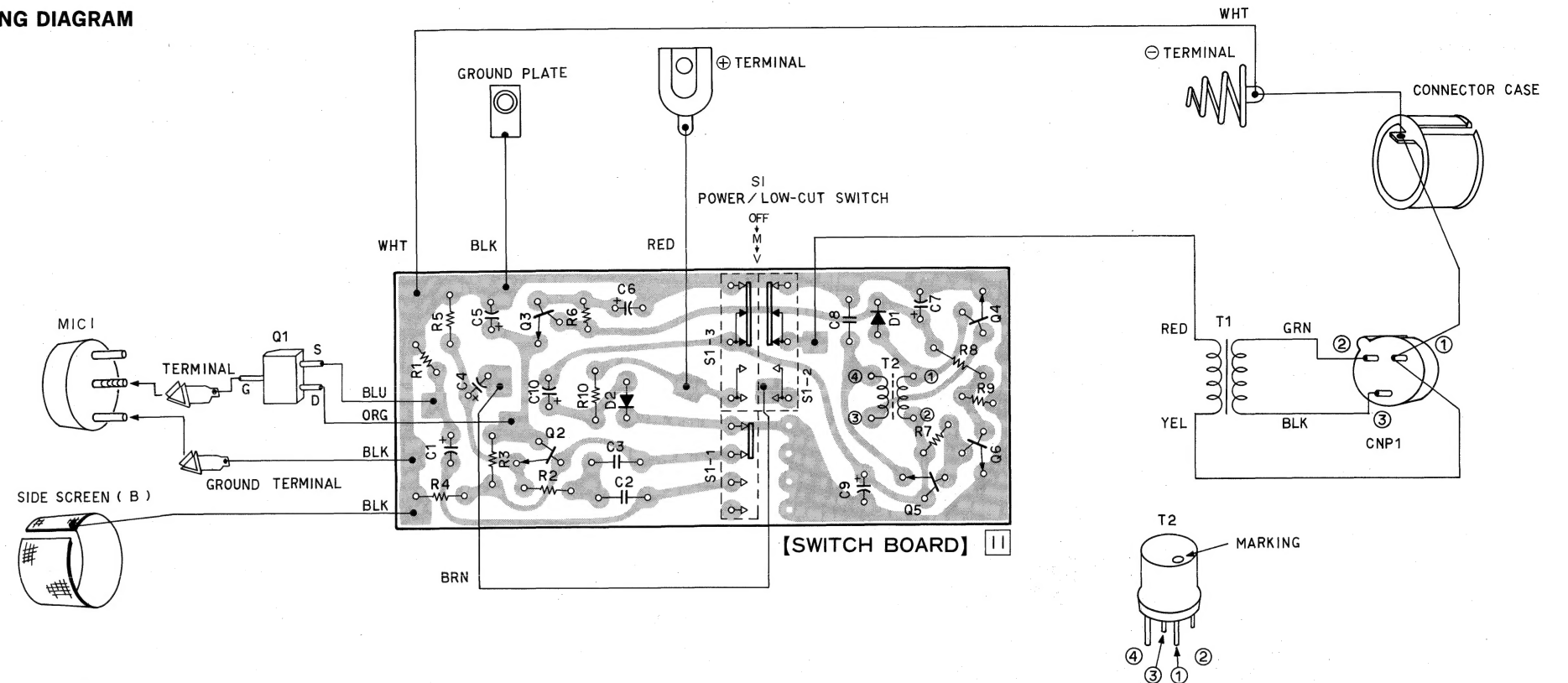


DISASSEMBLY

- (1) Transformer Cover : ①, ⑪
- (2) Grill Assy : ①-③
- (3) Microphone Capsule : ①-⑤
- (4) Connecting Frame : ①-③, ⑥-⑩



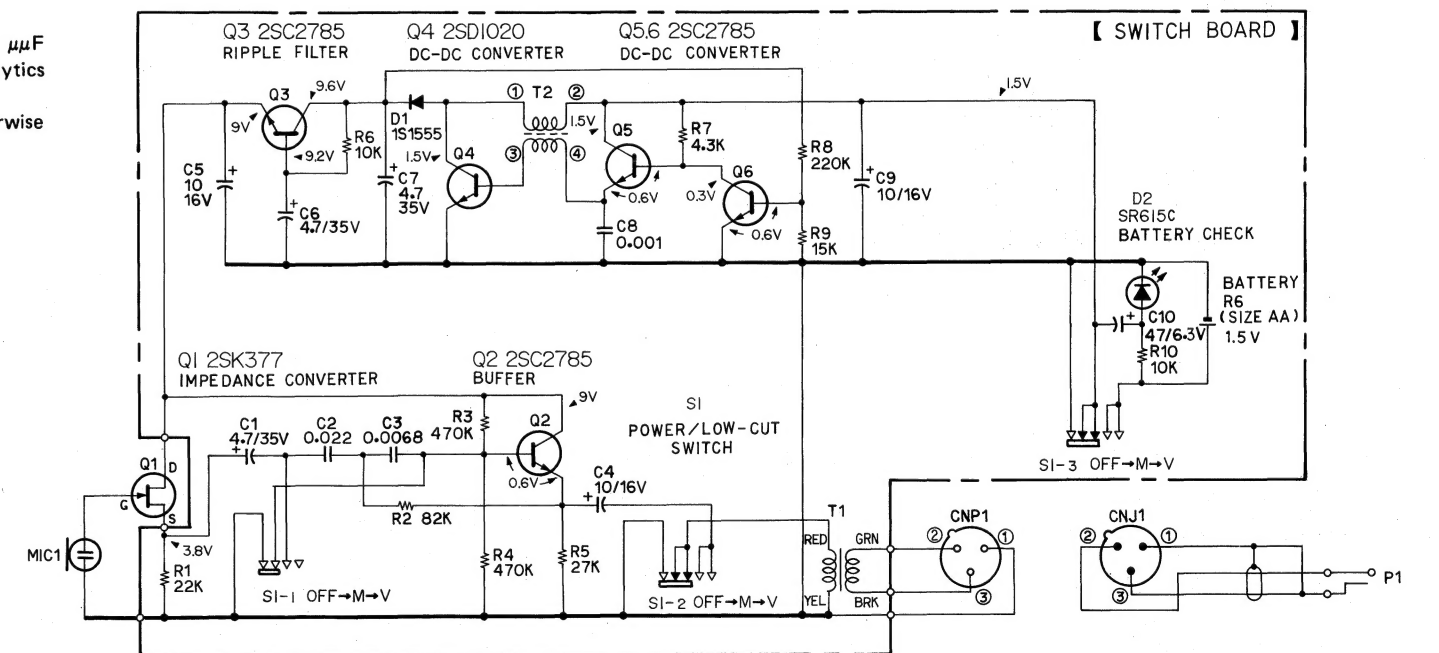
MOUNTING DIAGRAM



Note on Schematic

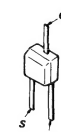
- All capacitors are in μF unless otherwise noted. pF : μF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{4}\text{W}$ or less unless otherwise specified.

SCHEMATIC DIAGRAM



Semiconductor Lead Layouts

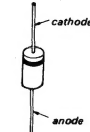
2SK377K



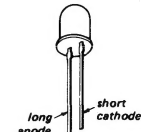
2SD1020
2SC2785



1S1555



SR615C

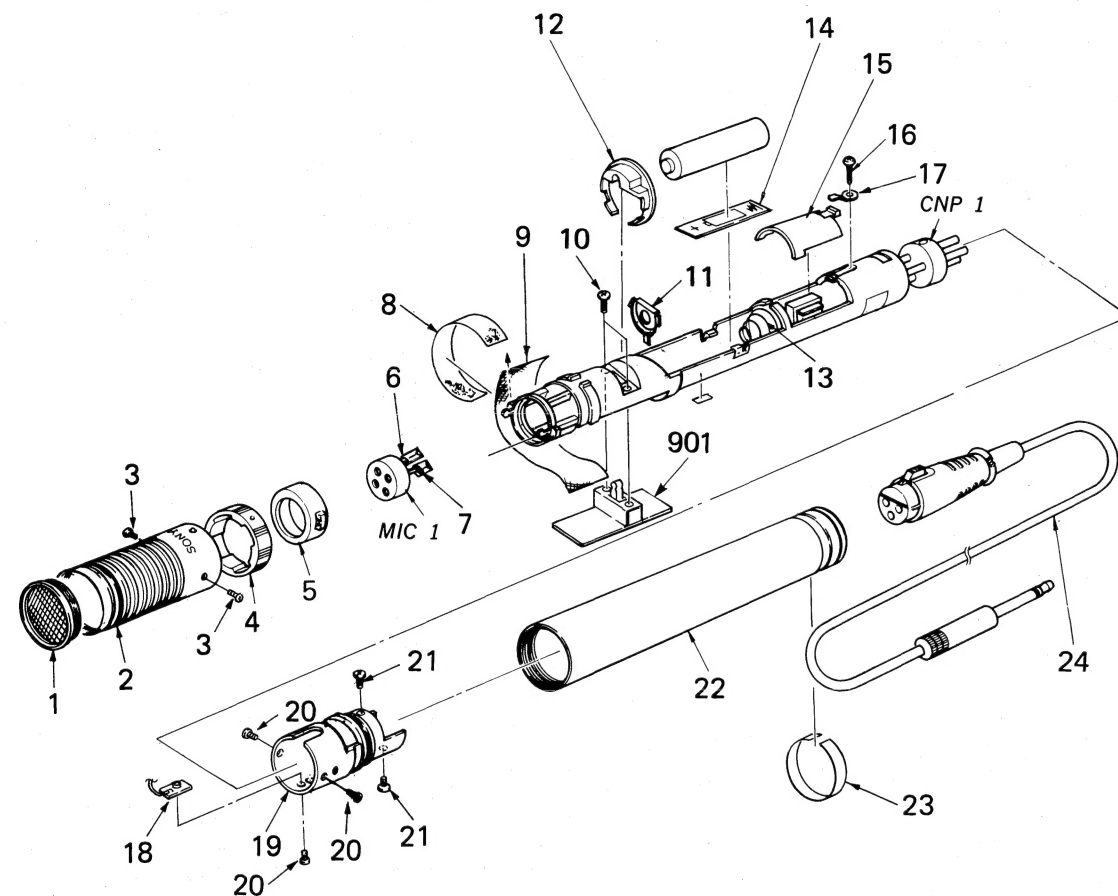


EXPLODED VIEW AND PARTS LIST

NOTE:

• The mechanical parts with no reference number in the exploded views are not supplied.

• Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	X-2539-601-1	RING ASSY, TOP		16	*4-908-792-11	SCREW, TAPPING B 2X3	
2	X-2539-602-1	GRILL ASSY		17	2-513-932-00	SPRING, GROUND	
3	7-627-652-18	SCREW, PRECISION +RK 2X3		18	*2-539-605-01	PLATE, GROUND	
4	2-513-915-11	KNOB, SWITCH		19	*2-539-603-01	CONNECTING FRAME	
5	2-529-957-01	HOLDER, CAPSULE		20	7-627-553-27	SCREW, PRECISION +P 2X2.5	
6	*2-532-219-00	TERMINAL, GROUND		21	7-627-452-18	SCREW, PRECISION +K 2X3	
7	2-523-713-00	TERMINAL		22	2-539-602-01	GRIP	
8	*2-539-607-01	SCREEN (C), SIDE		23	2-539-610-01	LABEL, MODEL NUMBER	
9	*2-539-606-01	SCREEN (B), SIDE		24	1-559-621-11	CORD, MICROPHONE (4 CORE)	
10	7-627-552-08	SCREW, PRECISION +P 1.7X2.5		901	*1-624-396-11	PC BOARD, SWITCH	
11	2-520-113-00	TERMINAL PLATE, POSITIVE					
12	2-513-914-00	RING, SWITCH					
13	X-2523-006-0	TERMINAL PLATE ASSY, NEGATIVE					
14	2-539-609-01	LABEL, BATTERY					
15	*2-513-924-00	COVER, TRANSFORMER					

ELECTRICAL PARTS LIST

NOTE:

• Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
• All resistors are in ohms.

ELECTRICAL PARTS						ACCESSORY & PACKING MATERIAL	
Ref.No.	Part No.	Description				Part No.	Description
C1	1-124-245-00	ELECT	4.7MF	20%	35V	2-539-618-01	CASE, ORNAMENTAL
C2	1-130-487-00	MYLAR	0.022MF	5%	50V	*2-539-617-01	INDIVIDUAL CARTON
C3	1-130-481-00	MYLAR	0.0068MF	5%	50V	2-599-370-11	MANUAL, INSTRUCTION
C4	1-124-462-00	ELECT	10MF	20%	16V	X-2539-604-1	WINDSCREEN ASSY (B)
C5	1-124-462-00	ELECT	10MF	20%	16V	1-559-621-11	CORD, MICROPHONE (4 CORE)
C6	1-124-245-00	ELECT	4.7MF	20%	35V	A-4581-009-A	HOLDER ASSY, MICROPHONE
C7	1-124-245-00	ELECT	4.7MF	20%	35V	3-701-620-00	BAG, POLYETHYLENE
C8	1-161-039-00	CERAMIC	0.001MF	10%	25V		
C9	1-124-462-00	ELECT	10MF	20%	16V		
C10	1-124-224-00	ELECT	47MF	20%	6.3V		
CNP1	1-509-096-00	CONNECTOR, CANNON XLR-3-14 PIN INSERT					
D1	8-719-815-55	DIODE 1S1555					
D2	8-719-123-70	DIODE SR615C					
MIC1	8-814-238-00	CAPSULE, MICROPHONE					
Q1	8-729-802-31	TRANSISTOR 2SK377-K					
Q2	8-729-178-54	TRANSISTOR 2SC2785-F					
Q3	8-729-178-54	TRANSISTOR 2SC2785-F					
Q4	8-729-102-02	TRANSISTOR 2SD1020-J					
Q5	8-729-178-54	TRANSISTOR 2SC2785-F					
Q6	8-729-178-54	TRANSISTOR 2SC2785-F					
R1	1-249-433-11	CARBON	22K	5%	1/4W		
R2	1-249-440-11	CARBON	82K	5%	1/4W		
R3	1-247-895-00	CARBON	470K	5%	1/4W		
R4	1-247-895-00	CARBON	470K	5%	1/4W		
R5	1-249-434-11	CARBON	27K	5%	1/4W		
R6	1-249-429-11	CARBON	10K	5%	1/4W		
R7	1-215-436-00	CARBON	4.3K	5%	1/4W		
R8	1-247-887-00	CARBON	220K	5%	1/4W		
R9	1-249-431-11	CARBON	15K	5%	1/4W		
R10	1-249-429-11	CARBON	10K	5%	1/4W		
S1	1-553-414-00	SWITCH, SLIDE					
T1	1-427-589-11	TRANSFORMER, OUTPUT					
T2	1-448-874-11	TRANSFORMER, DC-DC CONVERTER					